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11. *Two Cases of Intercellular Spaces in Vegetable Embryos*: K. M. WIEGAND.
12. *The Fruits of the Order Umbelliferæ*: DR. E. J. DURAND.
13. *The Action of Strong Currents of Electricity Upon Nervous Tissue*: DR. P. A. FISH.
14. *The Morphology of the Brain of the Soft-Shelled Turtle and the English Sparrow Compared*: SUSANNA P. GAGE.
15. *The Flagella of Motile Bacteria*: DR. V. A. MOORE.
16. *The Primitive Source of Food Supply in the Great Lakes*: PROFESSOR HENRY B. WARD.
17. *Some Experiments in Methods of Plankton Measurements*: PROFESSOR HENRY B. WARD.
18. *The Fruits of the Order Compositæ*: PROFESSOR W. W. ROWLEE and K. M. WIEGAND.
19. *The Spermatheca and Methods of Fertilization in Some American Newts and Salamanders*: DR. B. F. KINGSBURY.
20. *Cocaine in the Study of Pond-Life*: PROFESSOR H. S. CONSER.
21. *Paraffin and Colodion Embedding*: PROFESSOR H. S. CONSER.
22. *Formalin as a Hardening Agent for Nerve Tissue*: DR. WM. C. KRAUSS.
23. *The Use of Formalin in Neurology*: DR. P. A. FISH.
24. *The Lymphatics and the Lymph Circulation With Demonstrations of Specimens and Apparatus*: DR. GRANT S. HOPKINS.
25. *New Points in Photo-Micrographs and Cameras*: W. H. WALMSLEY.
26. *The Question of Correct Naming and Use of Micro-Reagents*: MISS V. A. LATHAM, M. D.
27. *A New Way of Marking Objectives*: DR. WM. C. KRAUSS.
28. *Demonstration of Histological Preparations by the Projection Microscope*: DRs. KRAUSS and MAL-LONEE.
29. *Improvements in the Collodion Method*: PROFESSOR S. H. GAGE.
30. *The Syracuse Solid Watch Glass*: DR. A. C. MERCER.
31. *A Metal Centering Block*: MAGNUS PFLAUM.
32. *A New Cell and a New Method of Mounting in Glycerin*: MAGNUS PFLAUM.

NOTES ON ENGINEERING.

THE BRITISH INSTITUTE OF MECHANICAL ENGINEERS.

THE Institute held its annual convention the first week in August at Glasgow, Professor A. B. W. Kennedy presiding. The principal papers and discussions related to

the economics of gas production and of the water supply of cities as a source of hydraulic power. The list was brief but the papers valuable and purely technical. Mr. Biggart described the application of hydraulic apparatus in the operation of charging retorts and in drawing the coke. The result was the doubling of the output with a stated force of men. Some 200 of the machines described are already in use. If applied to the whole manufacture in Great Britain, the estimated saving would be some \$2,000,000 annually on eight millions of tons of coal. Glasgow and other great cities have them in use. The manager of the Glasgow works stated that the machines used in their works on a half-million tons of coal annually are in use night and day and give no trouble whatever.

Mr. Ellington described the existing systems of hydraulic transmission of power in Glasgow and Manchester, where pressures of 1120 pounds per square inch had been adopted; the customary figure being 700 to 800. Their method of transmission was succeeding admirably in intermittent work, and especially for packing presses. This power was in use, here and there, in London for operating dynamos. The charge for water is equivalent to threepence per brake horse power per hour. In South America this method has been applied in extensive drainage.

THE CONGRESS OF SANITARY ENGINEERS AND ARCHITECTS.

REPORTS of the work of Congress held recently in Paris and attended by foreign as well as French professionals indicate that much remains still to be done to complete a modern satisfactory system. More questions were propounded than answered, by far, and many schemes proposed by members were found impracticable by those actually engaged in such work. Much was said of methods of economizing water with-

out restricting its necessary and desirable use, but no methods were found free from difficulty. The technical schools teaching sanitary plumbing were commended and their extension advised, as were the professorships of sanitation in schools of architecture. Wm. Trélat's system of heating rooms and his formulation of the theory—by no means new—that heat should be radiated into rooms from warm walls, and not introduced by heating the enclosed air, were strongly approved. One method of Mr. Trélat is that of superheating the room before it is required for use, and then, by opening doors and windows, replacing the heated by cold air, thus leaving the heating to be done by radiation from the walls, and yet giving the occupants cold air to breathe. Resolutions were passed in favor of baths in schools, of cheap working-class dwellings and other social and economic improvements. The attendance was about three hundred.

GENERAL.

THE largest steamer yet constructed for carrying freight was launched at Wallsend, G. B., recently. The 'Westmeath' is 465 feet long, 56 feet beam, $34\frac{1}{2}$ feet moulded depth, and can carry 10,500 tons dead weight of cargo, or 14,500 tons by measurement. The bottom is double and constructed as a system of ballast tanks. The engines are triple expansion and work at 180 pounds pressure. The hull is by Swan & Hunter, the engines by the Wallsend Engineering Co.

ENGLISH express trains between London and Glasgow and Edinburgh have for many years had schedules calling for speeds of 50 miles an hour. This has now been bettered by the London-Aberdeen express, which is scheduled to make the 540 miles in $8\frac{1}{4}$ hours. This was accomplished by the first train a month ago, and with no apparent difficulty, making the mean speed

including stops over 63 miles an hour, and probably at times between stations on level stretches above 70 miles.

PROFESSOR SYLVANUS THOMPSON, in a letter to the *London Times*, August 1st, protests against the prejudice attributed to Lord Kelvin and others in favor of continuous currents for general use, and states that experience indicated the alternating currents to be desirable for all but electrolytic work. The obvious advantages of simplicity and relative cheapness of the latter are in no other case considered by the critic to be in any important degree compensated by continuity of current. R. H. THURSTON.

SCIENTIFIC NOTES AND NEWS.

SIR WILLIAM TURNER (Journ. Anat. and Physiol., April, 1895, p. 424) after reviewing the famous examples of the so-called transitional forms between apes and man, and concluding that they are without exception human, gives a detailed account of Dubois' *Pithecanthropus erectus*. The fragments on which this 'genus' is founded are also thought to be human when the single molar tooth is eliminated. The author holds that, since the crown of this tooth is not worn, while all the sutures of the cranial vault are obliterated, the tooth is from another skeleton and in all probability that of an orang.

PROFESSOR D. D. SLADE has written an elaborate paper on *The Significance of the Jugal Arch*. (Proc. Amer. Philosoph. Soc. xxxiv., May 13th, 1895, pp. 17.) A systematic review of the elements entering into the composition of the jugal arch in the mammalia is essayed. The author invites attention to the taxonomic value of the arch in genera and families, while acknowledging that the underlying forces which it is assumed have produced the various forms yet await elucidation.

AT the approaching meeting of the British Association for the Advancement of